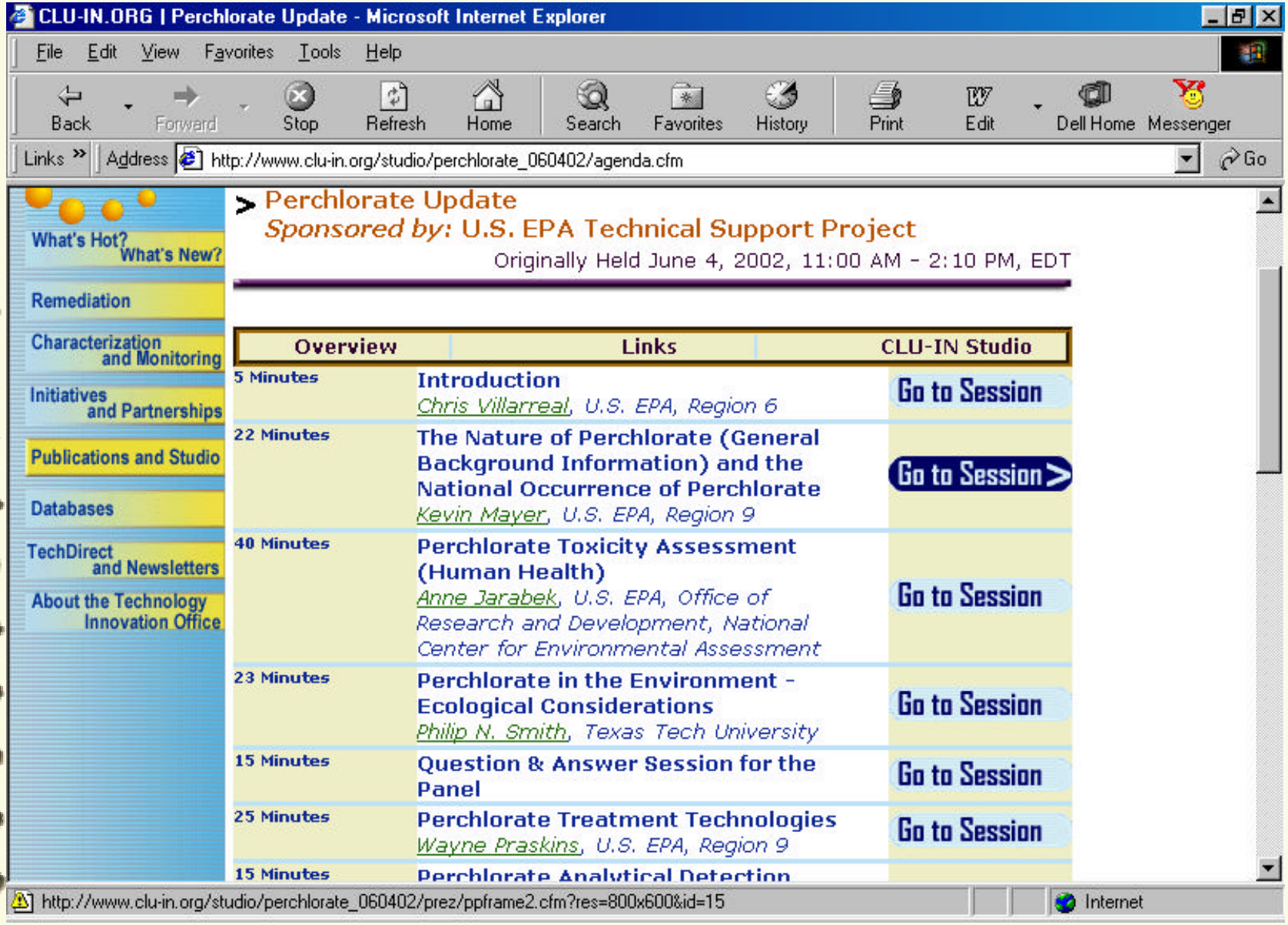
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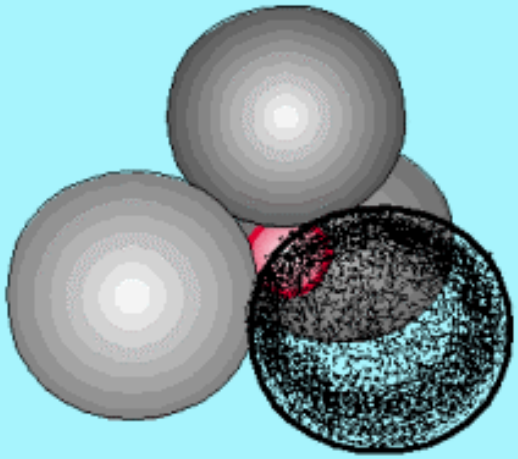
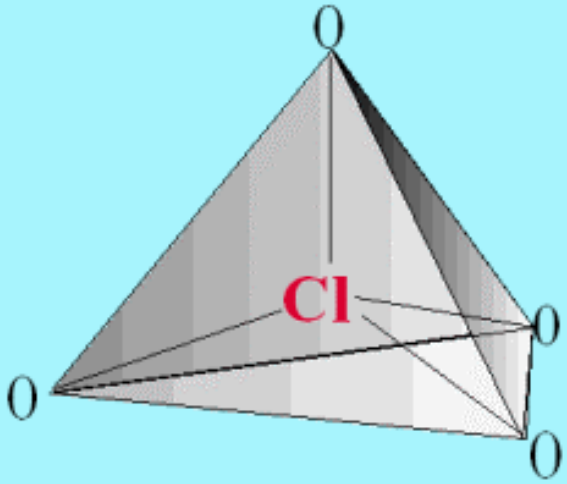
Links Address http://www.clu-in.org/studio/perchlorate_060402/agenda.cfm Go
What's Hot? What's New?
Remediation
Characterization and Monitoring
Initiatives and Partnerships
Publications and Studio
Databases
TechDirect and Newsletters
About the Technology Innovation Office
> Perchlorate Update
Sponsored by: U.S. EPA Technical Support Project
Originally Held June 4, 2002, 11:00 AM - 2:10 PM, EDT
Overview
Links
CLU-IN Studio
5 Minutes
Introduction
Chris Villarreal, U.S. EPA, Region 6
Go to Session
22 Minutes
The Nature of Perchlorate (General Background Information) and the National Occurrence of Perchlorate
Kevin Mayer, U.S. EPA, Region 9
Go to Session >
40 Minutes
Perchlorate Toxicity Assessment (Human Health)
Anne Jarabek, U.S. EPA, Office of Research and Development, National Center for Environmental Assessment
Go to Session
23 Minutes
Perchlorate in the Environment - Ecological Considerations
Philip N. Smith, Texas Tech University
Go to Session
15 Minutes
Question & Answer Session for the Panel
Go to Session
25 Minutes
Perchlorate Treatment Technologies
Wayne Praskins, U.S. EPA, Region 9
Go to Session
15 Minutes
Perchlorate Analytical Detection
http://www.clu-in.org/studio/perchlorate_060402/prez/ppframe2.cfm?res=800x600&id=15
Internet

PERCHLORATE

ClO_4^-





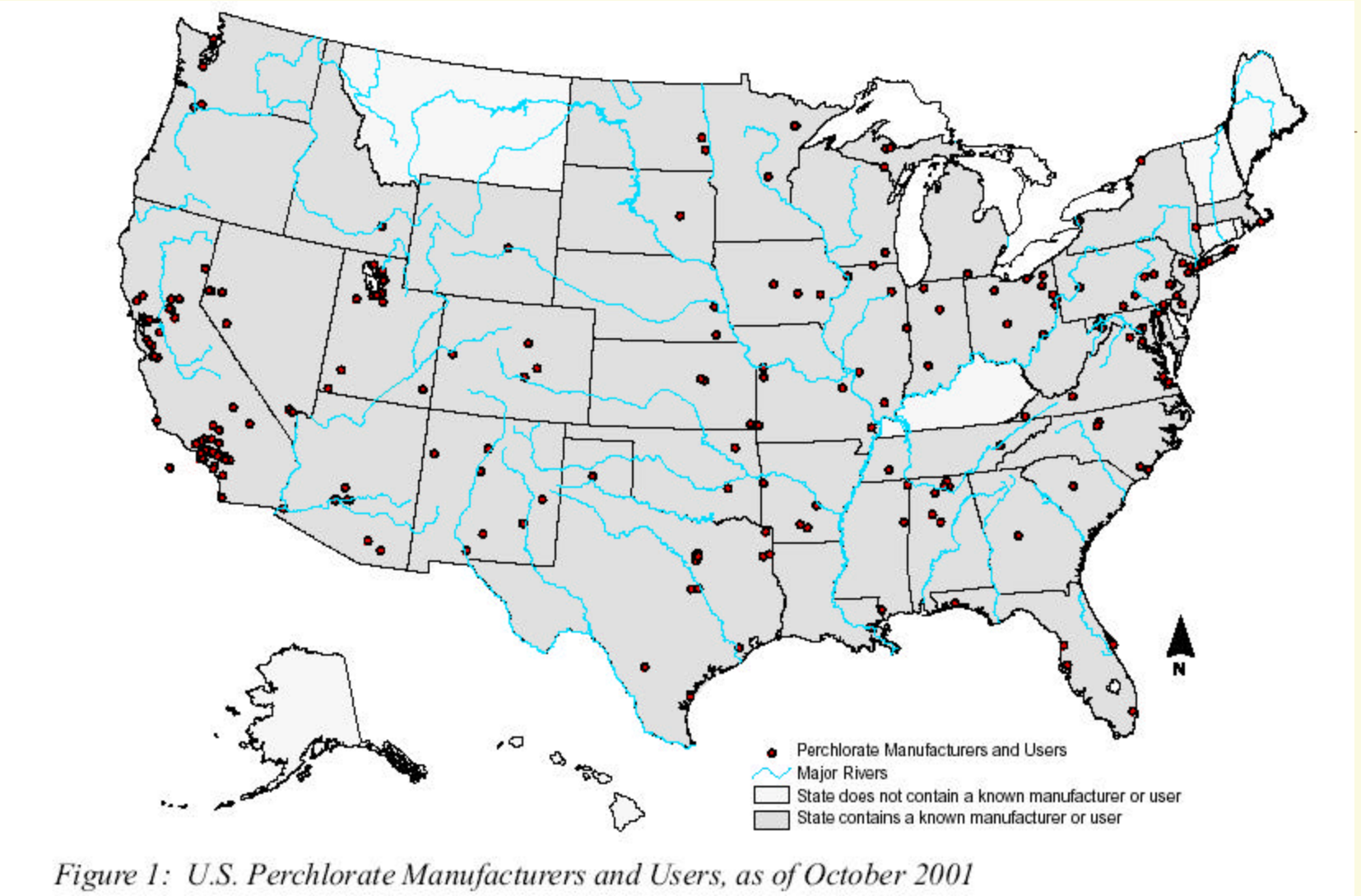


Figure 1: U.S. Perchlorate Manufacturers and Users, as of October 2001

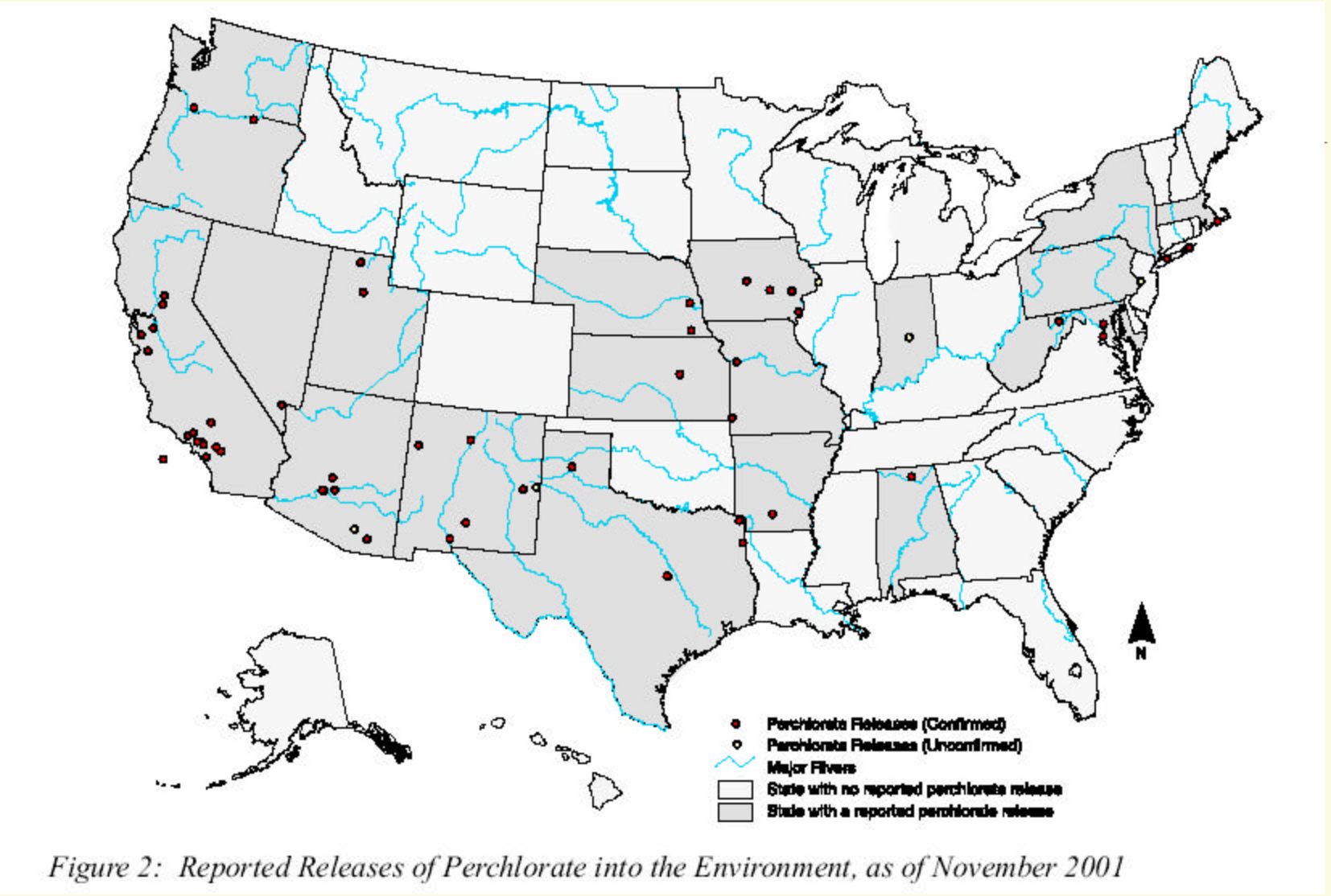
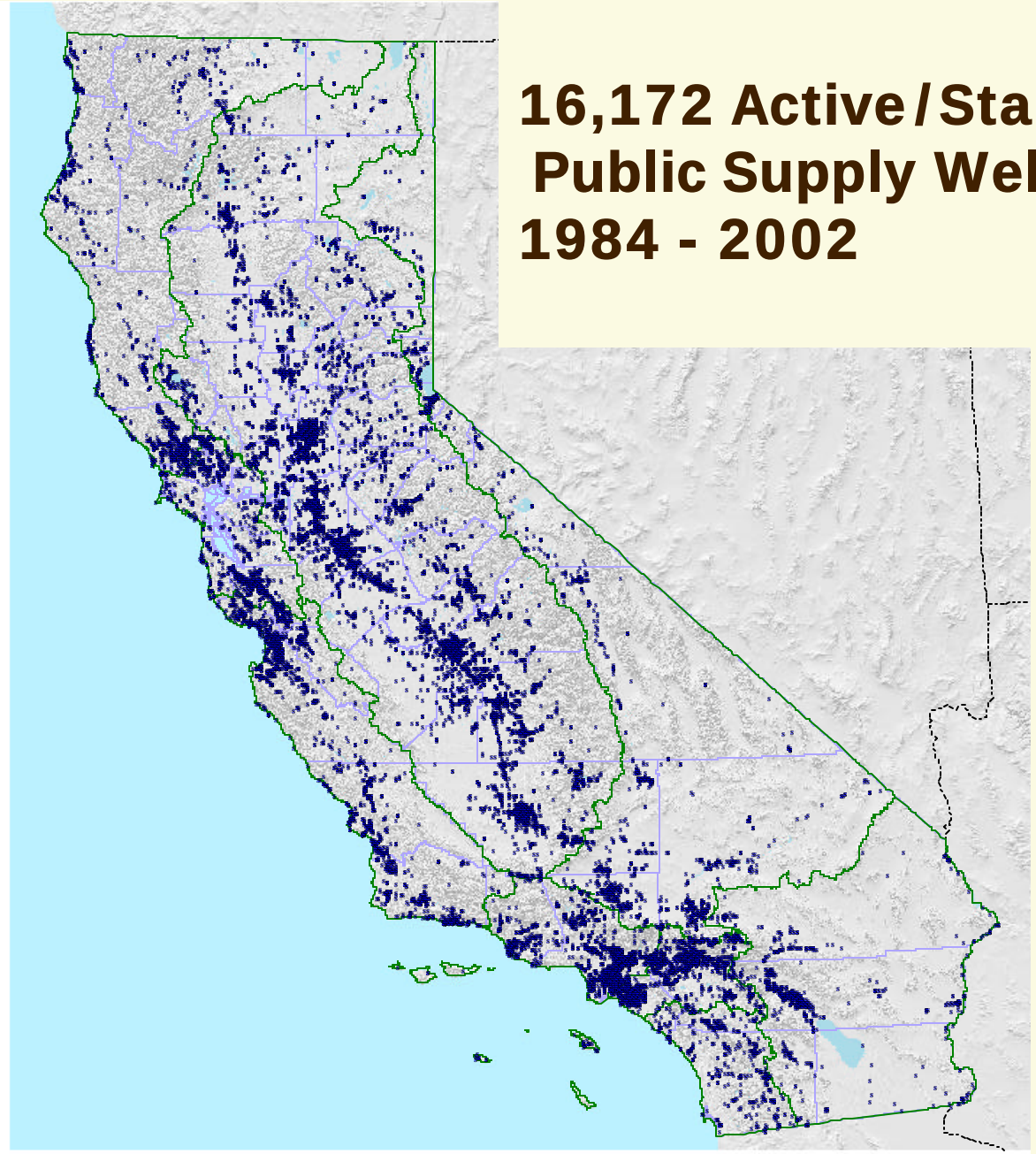
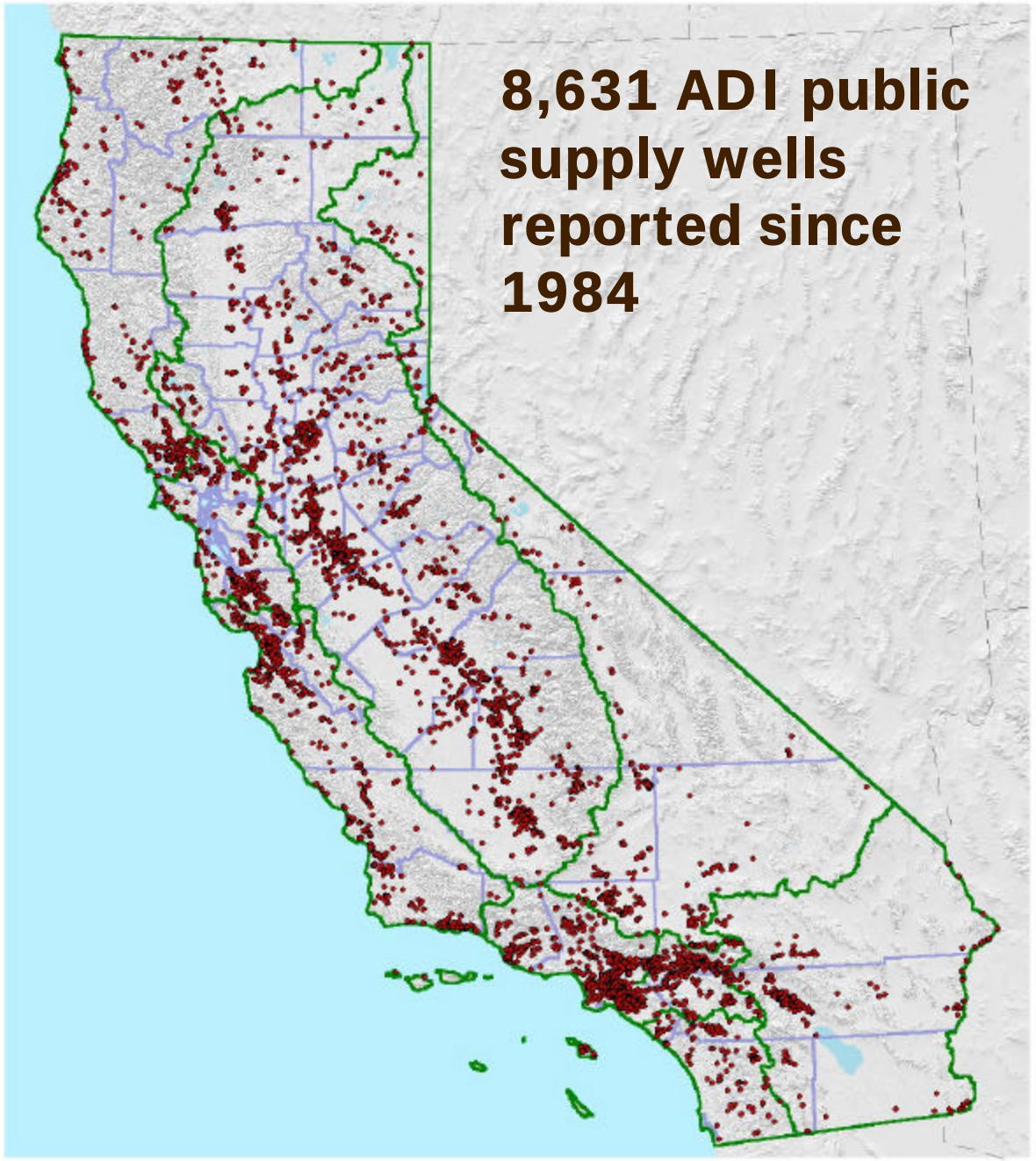


Figure 2: Reported Releases of Perchlorate into the Environment, as of November 2001


Locations of Confirmed Perchlorate Releases and Detections in Public Supply Wells
Legend
Perchlorate >= 4 PPB in Active and Standby Public Supply Wells (318 Wells)
Perchlorate >= 4 PPB in Abandoned, Destroyed, and Inactive Public Supply Wells (77 Wells)
Sites with Confirmed Perchlorate Releases (DTSC / Regional Boards Regulatory Lead -- 22 Sites as of 12/06/07)
Regional Board Boundaries
County Boundaries
N
W
E
S
0 30 60 Miles

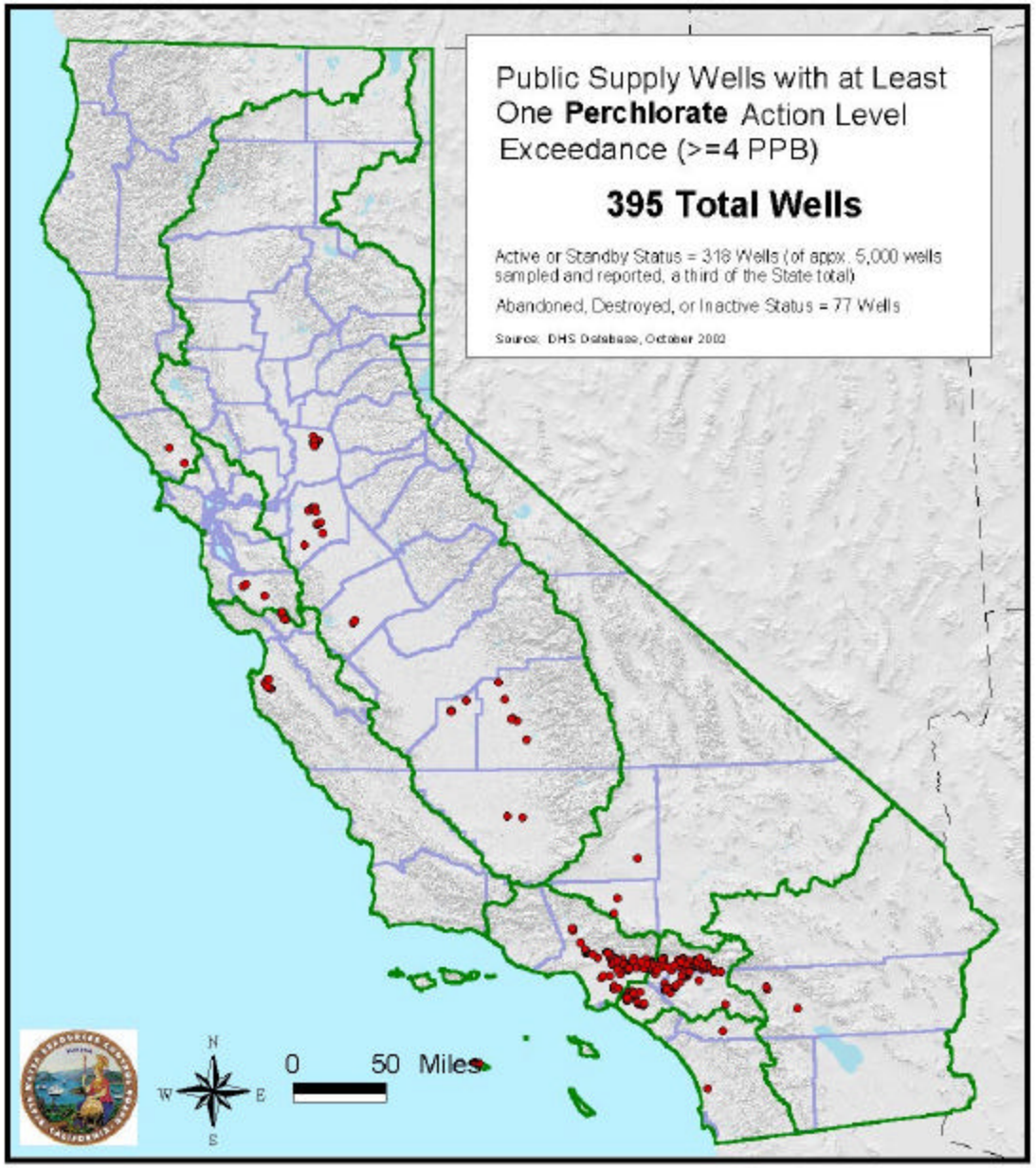


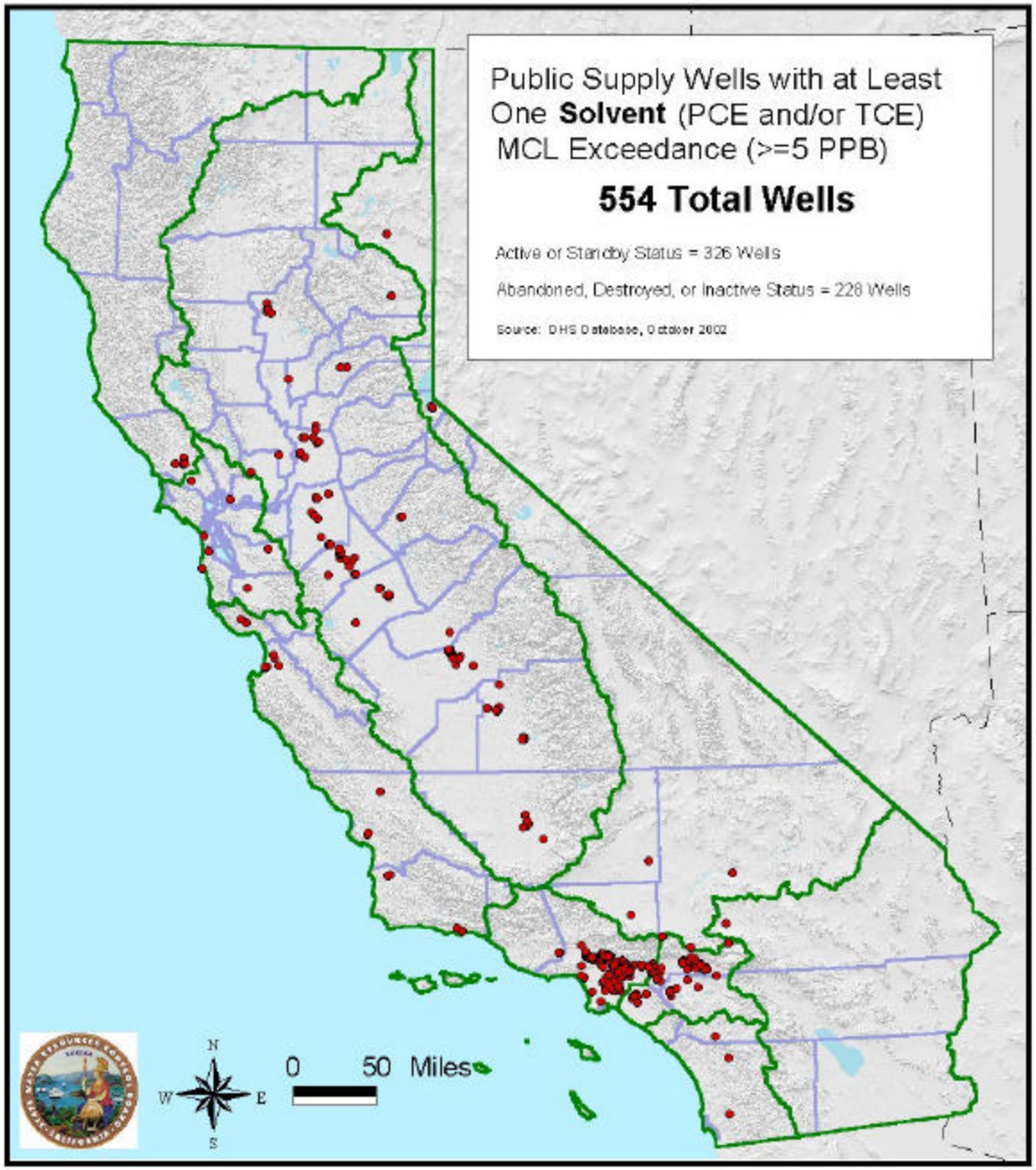
16,172 Active/Standby Public Supply Wells 1984 - 2002

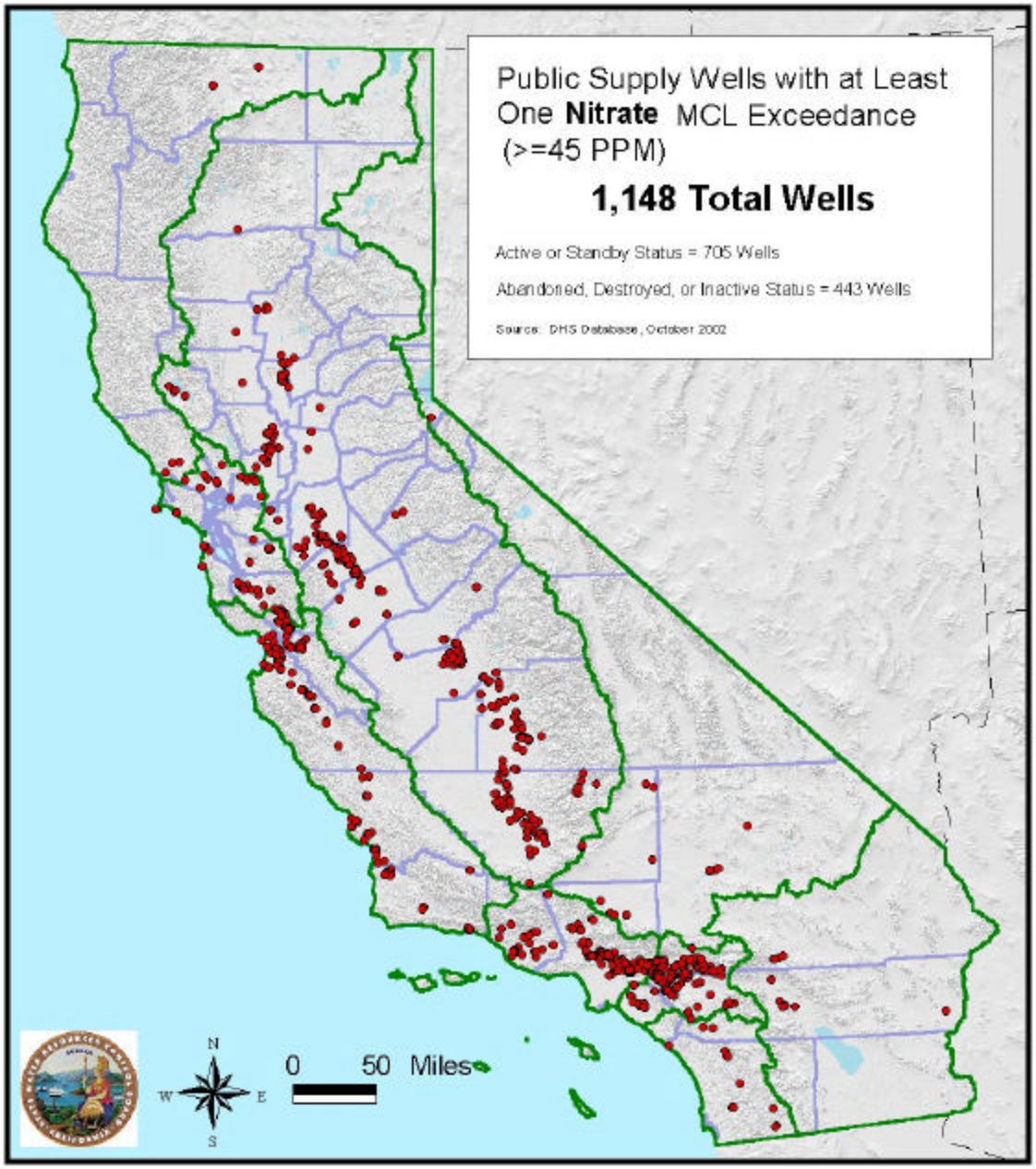

8,631 ADI public supply wells reported since 1984


Public Supply Wells with at Least One **Benzene** MCL Exceedance (>=1 PPB)
48 Total Wells
Active or Standby Status = 33 Wells
Abandoned, Destroyed, or Inactive Status = 15 Wells
Source: DHS Database, October 2002
N
W
E
S
0
50 Miles


Public Supply Wells with at Least One **MTBE** MCL Exceedance (>=5 PPB)
55 Total Wells
Active or Standby Status = 38 Wells
Abandoned, Destroyed, or Inactive Status = 17 Wells
Source: DHS Database, October 2002
N
W
E
S
0
50 Miles


Public Supply Wells with at Least One **Perchlorate** Action Level Exceedance (>=4 PPB)
395 Total Wells
Active or Standby Status = 318 Wells (of appx. 5,000 wells sampled and reported, a third of the State total)
Abandoned, Destroyed, or Inactive Status = 77 Wells
Source: DHS Database, October 2002
N
W
E
S
0
50 Miles


Public Supply Wells with at Least One **Solvent** (PCE and/or TCE) MCL Exceedance (>=5 PPB)
554 Total Wells
Active or Standby Status = 326 Wells
Abandoned, Destroyed, or Inactive Status = 228 Wells
Source: DHS Database, October 2002
N
W
E
S
0
50 Miles


Public Supply Wells with at Least One **Nitrate** MCL Exceedance (>=45 PPM)
1,148 Total Wells
Active or Standby Status = 705 Wells
Abandoned, Destroyed, or Inactive Status = 443 Wells
Source: DHS Database, October 2002
N
W
E
S
0
50 Miles

Colorado River PERCHLORATE

Over 870 pounds per DAY into Lake Mead
Transported through 3+ miles of groundwater

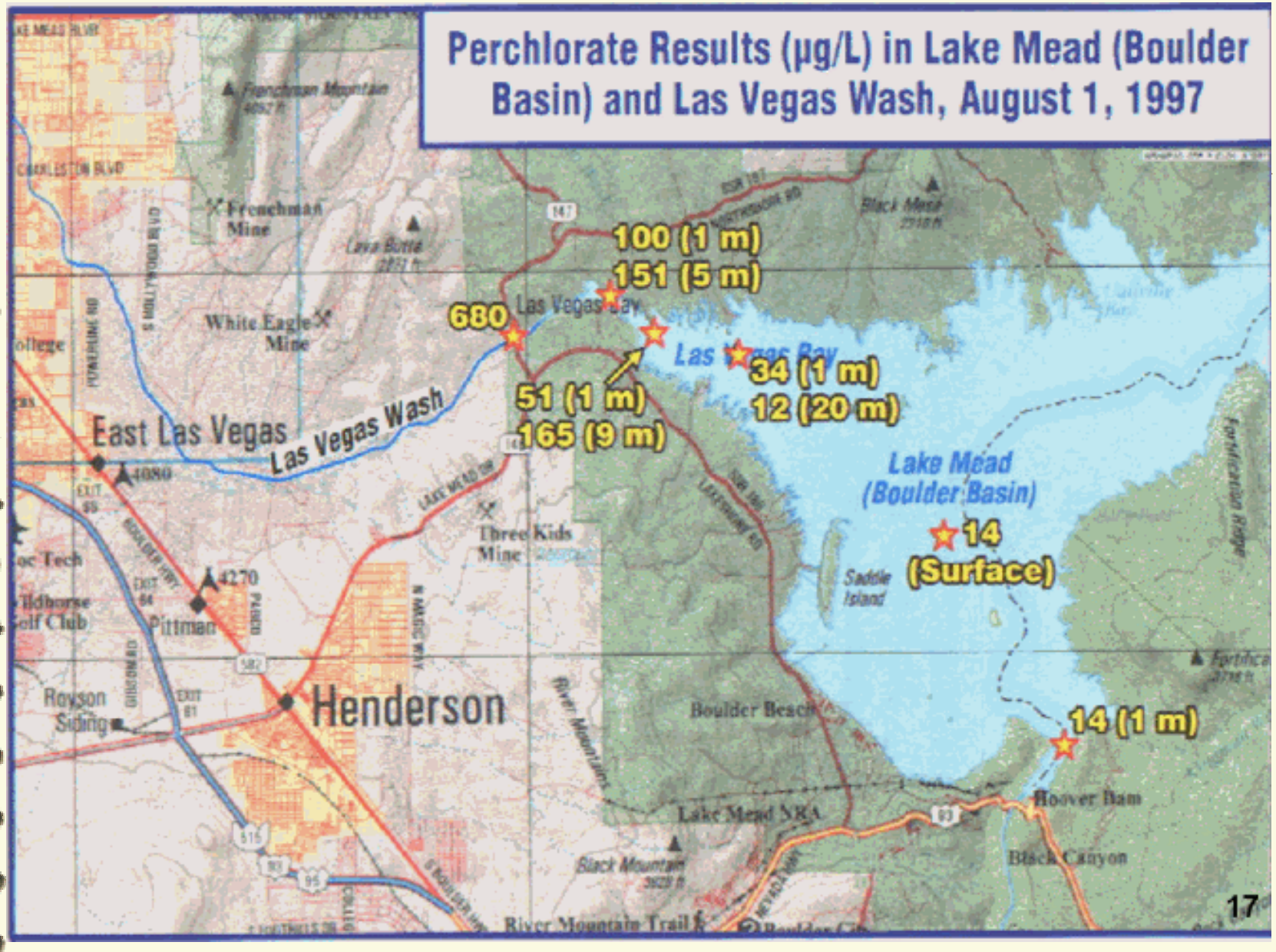
Since June 2000, less than 500 pounds/day

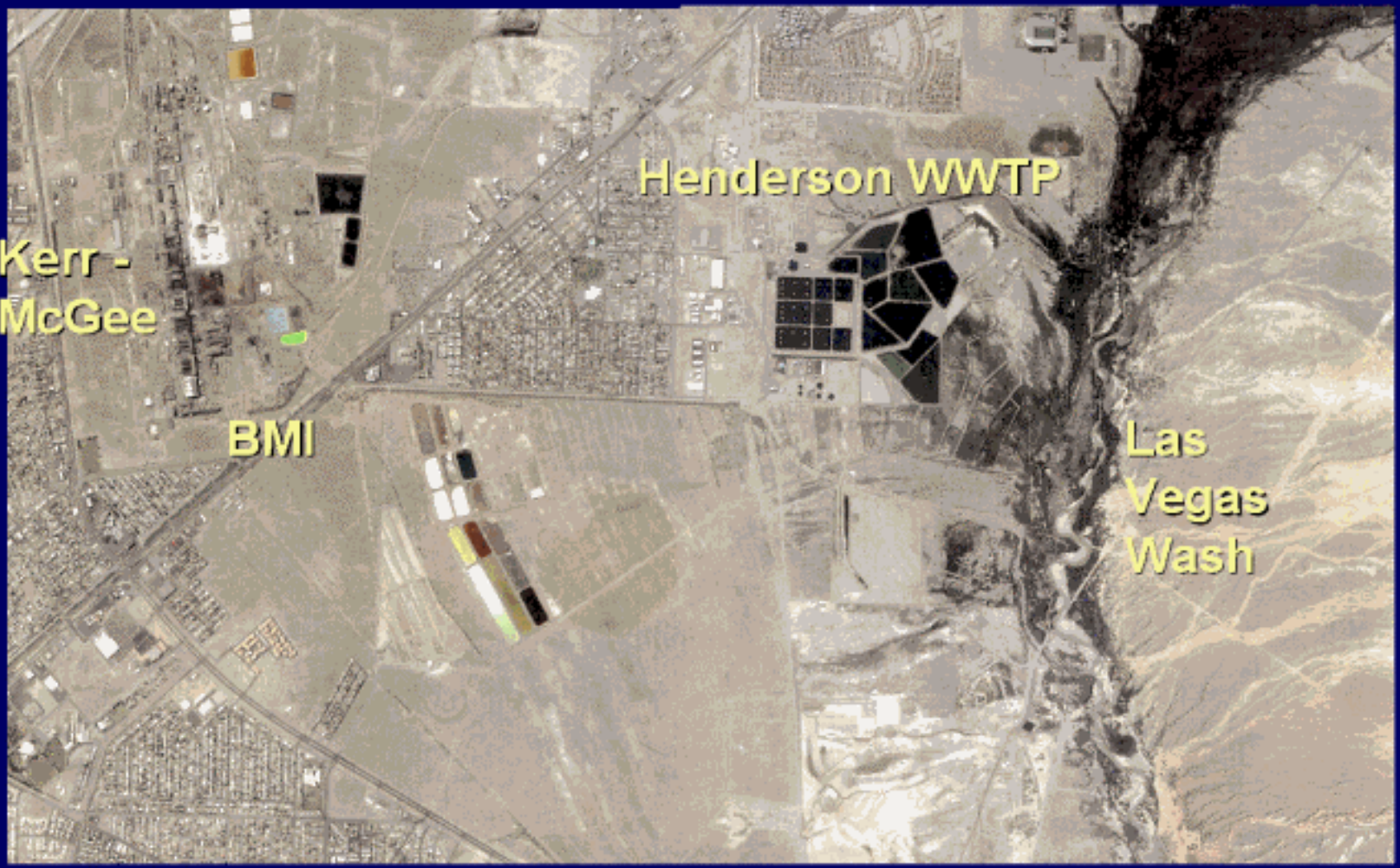
Hoover Dam, still up to 1000 pounds/day to Lower Colorado River, 5-9 ppb

Residence time in Lake/River - Years

Drinking Water Source for 15+ Million
Irrigation Supply


Lower Colorado River
NEVADA
Las Vegas
Henderson
HOOVER DAM
Lake Mead
Colorado River
Hualapai
Kingman
DAVIS DAM
CALIFORNIA
Fort Mojave
ARIZONA
Havasu
Chemehuevi
PARKER DAM
Bill Williams River
Parker
Los Angeles
San Diego
Colorado River Aqueduct
Colorado River
Central AZ Project Aqueduct
Palm Springs
Phoenix
Coachella Canal
Salton Sea
Colorado
IMPERIAL DAM
Quechan
LAGUNA DAM
Gila River
All American Canal
Yuma
NORELOS DAM
Cocopah
River /Aqueduct
Indian Reservation
EPA
MEXICO


Perchlorate Results (µg/L) in Lake Mead (Boulder Basin) and Las Vegas Wash, August 1, 1997
100 (1 m)
151 (5 m)
680
Las Vegas Bay
34 (1 m)
12 (20 m)
51 (1 m)
165 (9 m)
Las Vegas Wash
East Las Vegas
Lake Mead (Boulder Basin)
14 (Surface)
Three Kids Mine
Frenchman Mine
White Eagle Mine
Pittman
Henderson
Boulder Beach
14 (1 m)
Lake Mead NRA
Hoover Dam
Black Canyon
River Mountain Trail
17



BMI and Las Vegas Wash, Henderson NV


Locations of Confirmed Perchlorate Releases and Detections in Public Supply Wells
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Sites with Confirmed Perchlorate Releases (DTSC / Regional Boards Regulatory Lead -- 22 Sites as of 12/06/07)
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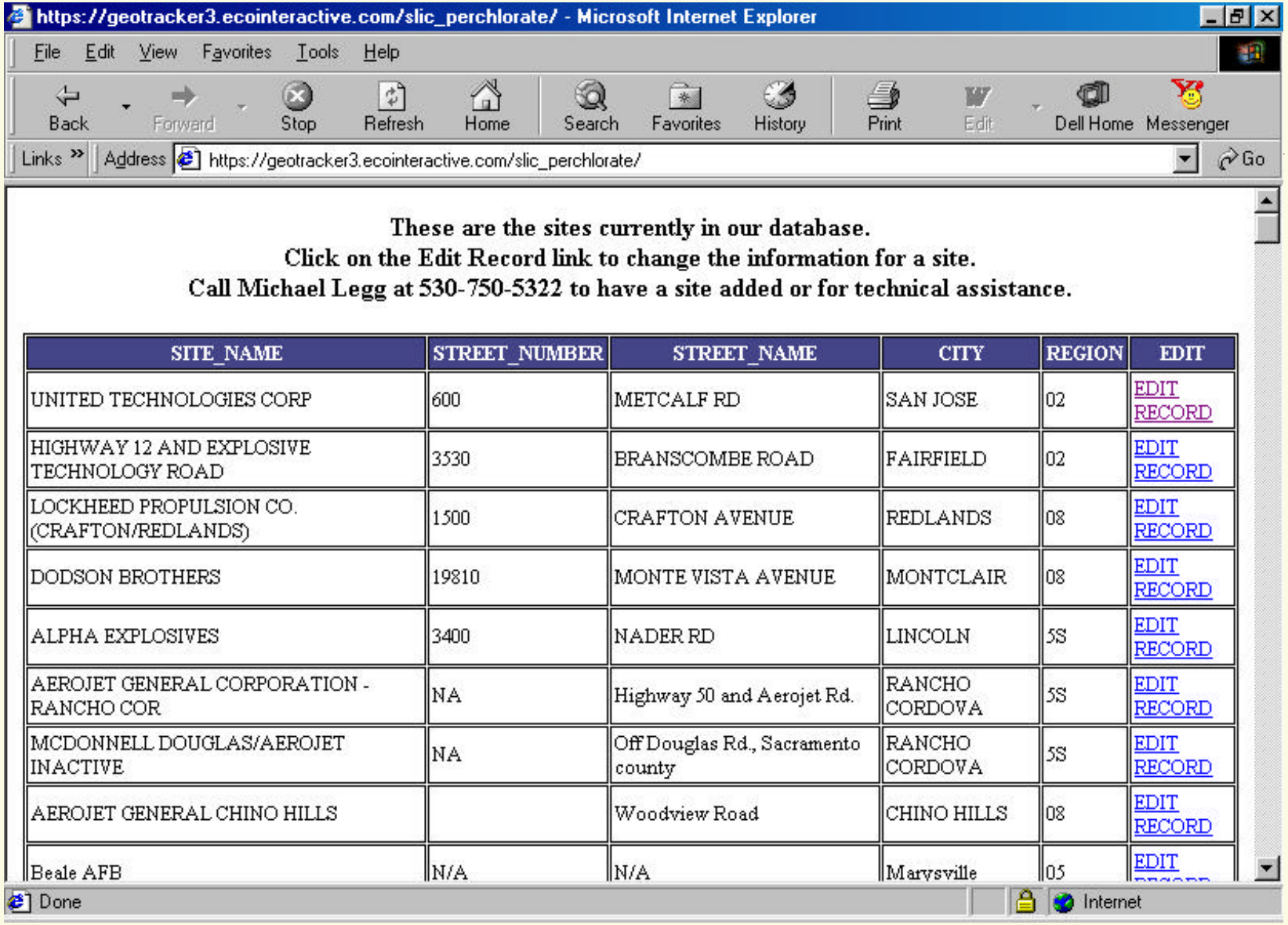
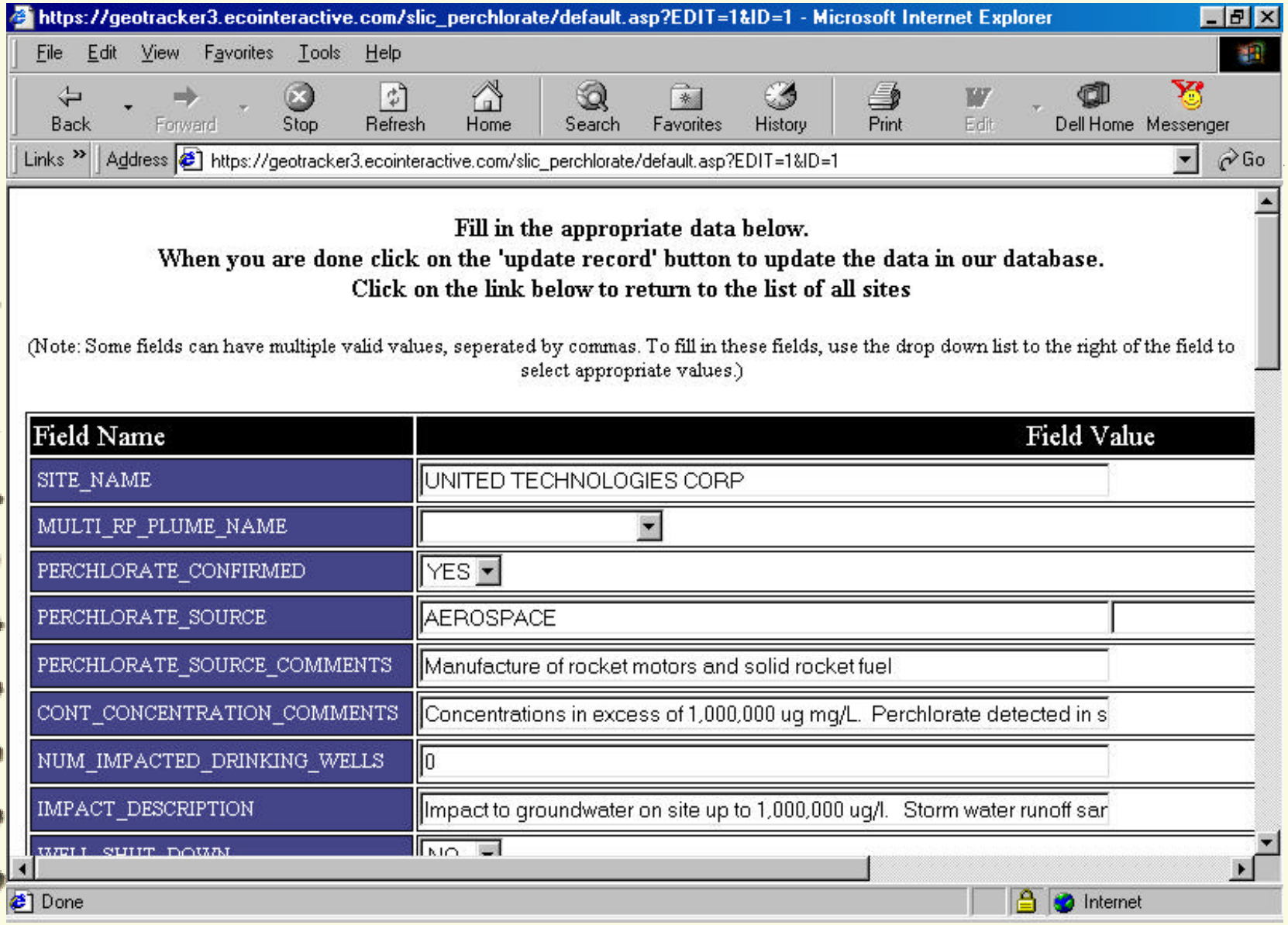
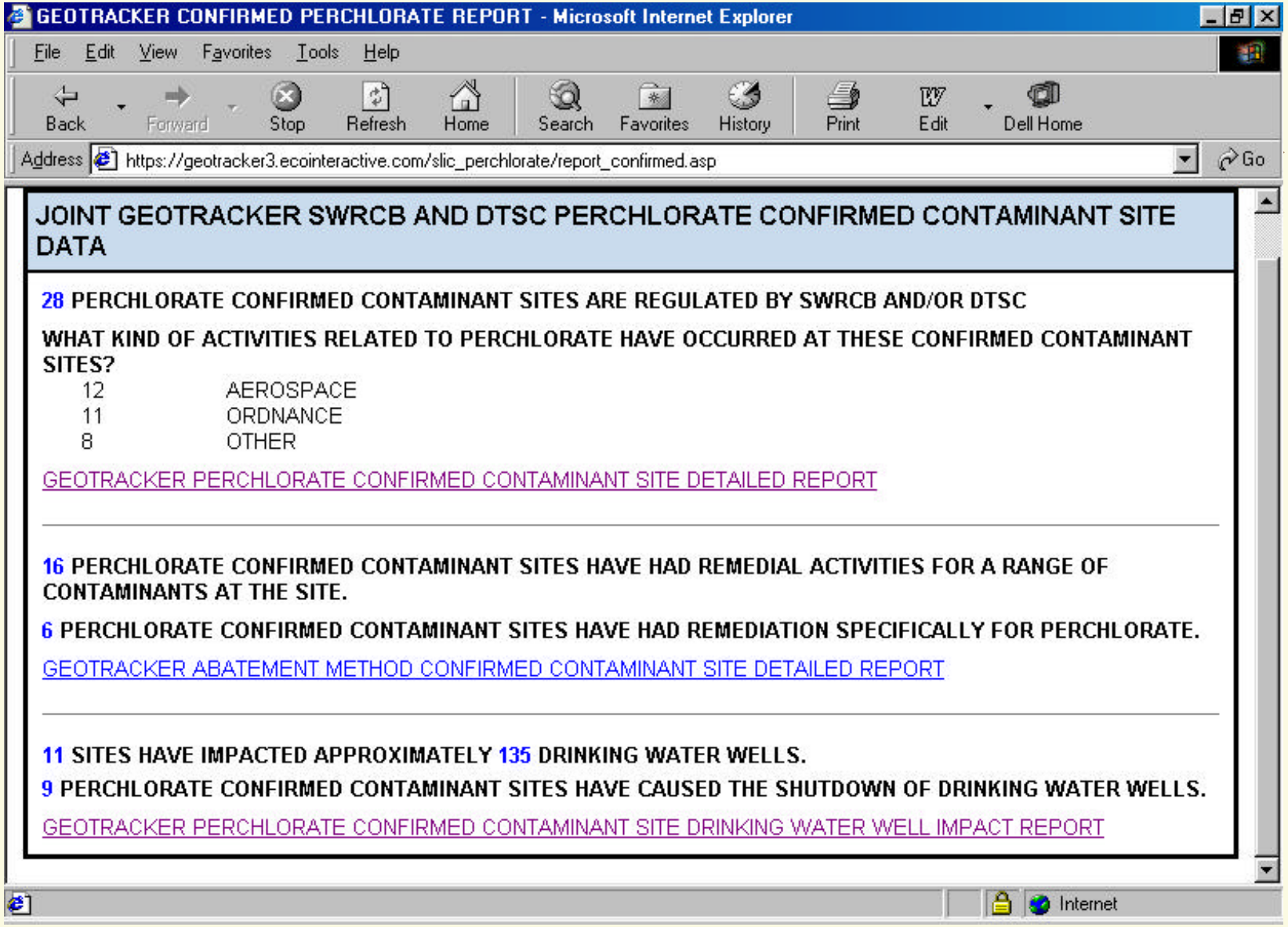
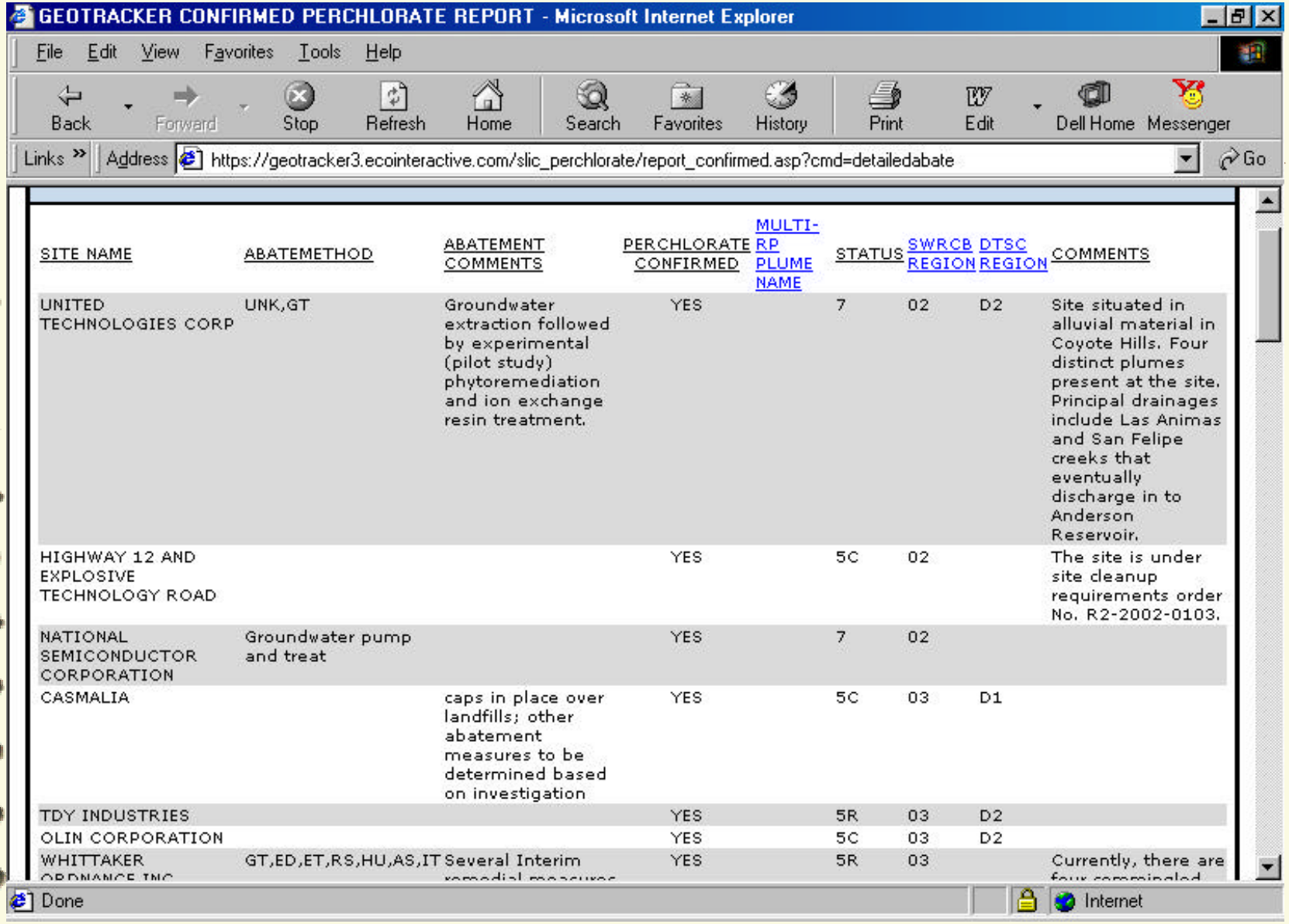
County Boundaries
N
W
E
S
0 30 60 Miles


https://geotracker3.ecointeractive.com/slic_perchlorate/ - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Forward Stop Refresh Home Search Favorites History Print Edit Dell Home Messenger
Links Address https://geotracker3.ecointeractive.com/slic_perchlorate/ Go
These are the sites currently in our database.
Click on the Edit Record link to change the information for a site.
Call Michael Legg at 530-750-5322 to have a site added or for technical assistance.
SITE_NAME | STREET_NUMBER | STREET_NAME | CITY | REGION | EDIT
UNITED TECHNOLOGIES CORP | 600 | METCALF RD | SAN JOSE | 02 | EDIT RECORD
HIGHWAY 12 AND EXPLOSIVE TECHNOLOGY ROAD | 3530 | BRANSCOMBE ROAD | FAIRFIELD | 02 | EDIT RECORD
LOCKHEED PROPULSION CO. (CRAFTON/REDLANDS) | 1500 | CRAFTON AVENUE | REDLANDS | 08 | EDIT RECORD
DODSON BROTHERS | 19810 | MONTE VISTA AVENUE | MONTCLAIR | 08 | EDIT RECORD
ALPHA EXPLOSIVES | 3400 | NADER RD | LINCOLN | 5S | EDIT RECORD
AEROJET GENERAL CORPORATION - RANCHO COR | NA | Highway 50 and Aerojet Rd. | RANCHO CORDOVA | 5S | EDIT RECORD
MCDONNELL DOUGLAS/AEROJET INACTIVE | NA | Off Douglas Rd., Sacramento county | RANCHO CORDOVA | 5S | EDIT RECORD
AEROJET GENERAL CHINO HILLS | | Woodview Road | CHINO HILLS | 08 | EDIT RECORD
Beale AFB | N/A | N/A | Marysville | 05 | EDIT
Done
Internet


https://geotracker3.ecointeractive.com/slic_perchlorate/default.asp?EDIT=1&ID=1 - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Forward Stop Refresh Home Search Favorites History Print Edit Dell Home Messenger
Links Address https://geotracker3.ecointeractive.com/slic_perchlorate/default.asp?EDIT=1&ID=1
Go
Fill in the appropriate data below.
When you are done click on the 'update record' button to update the data in our database.
Click on the link below to return to the list of all sites
(Note: Some fields can have multiple valid values, seperated by commas. To fill in these fields, use the drop down list to the right of the field to select appropriate values.)
Field Name
Field Value
SITE_NAME
UNITED TECHNOLOGIES CORP
MULTI_RP_PLUME_NAME
PERCHLORATE_CONFIRMED
YES
PERCHLORATE_SOURCE
AEROSPACE
PERCHLORATE_SOURCE_COMMENTS
Manufacture of rocket motors and solid rocket fuel
CONT_CONCENTRATION_COMMENTS
Concentrations in excess of 1,000,000 ug mg/L. Perchlorate detected in s
NUM_IMPACTED_DRINKING_WELLS
0
IMPACT_DESCRIPTION
Impact to groundwater on site up to 1,000,000 ug/l. Storm water runoff sar
Done
Internet


GEOTRACKER CONFIRMED PERCHLORATE REPORT - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Forward Stop Refresh Home Search Favorites History Print Edit Dell Home
Address https://geotracker3.ecointeractive.com/slic_perchlorate/report_confirmed.asp
Go
JOINT GEOTRACKER SWRCB AND DTSC PERCHLORATE CONFIRMED CONTAMINANT SITE DATA
28 PERCHLORATE CONFIRMED CONTAMINANT SITES ARE REGULATED BY SWRCB AND/OR DTSC
WHAT KIND OF ACTIVITIES RELATED TO PERCHLORATE HAVE OCCURRED AT THESE CONFIRMED CONTAMINANT SITES?
12 AEROSPACE
11 ORDNANCE
8 OTHER
GEOTRACKER PERCHLORATE CONFIRMED CONTAMINANT SITE DETAILED REPORT
16 PERCHLORATE CONFIRMED CONTAMINANT SITES HAVE HAD REMEDIAL ACTIVITIES FOR A RANGE OF CONTAMINANTS AT THE SITE.
6 PERCHLORATE CONFIRMED CONTAMINANT SITES HAVE HAD REMEDIATION SPECIFICALLY FOR PERCHLORATE.
GEOTRACKER ABATEMENT METHOD CONFIRMED CONTAMINANT SITE DETAILED REPORT
11 SITES HAVE IMPACTED APPROXIMATELY 135 DRINKING WATER WELLS.
9 PERCHLORATE CONFIRMED CONTAMINANT SITES HAVE CAUSED THE SHUTDOWN OF DRINKING WATER WELLS.
GEOTRACKER PERCHLORATE CONFIRMED CONTAMINANT SITE DRINKING WATER WELL IMPACT REPORT
Internet



SITE NAME	ABATEMETHOD	ABATEMENT COMMENTS	PERCHLORATE CONFIRMED	MULTI-RP PLUME NAME	STATUS	SWRCB REGION	DTSC REGION	COMMENTS
UNITED TECHNOLOGIES CORP	UNK,GT	Groundwater extraction followed by experimental (pilot study) phytoremediation and ion exchange resin treatment.	YES		7	02	D2	Site situated in alluvial material in Coyote Hills. Four distinct plumes present at the site. Principal drainages include Las Animas and San Felipe creeks that eventually discharge in to Anderson Reservoir.
HIGHWAY 12 AND EXPLOSIVE TECHNOLOGY ROAD			YES		5C	02		The site is under site cleanup requirements order No. R2-2002-0103.
NATIONAL SEMICONDUCTOR CORPORATION	Groundwater pump and treat		YES		7	02		
CASMALIA		caps in place over landfills; other abatement measures to be determined based on investigation	YES		5C	03	D1	
TDY INDUSTRIES			YES		5R	03	D2	
OLIN CORPORATION			YES		5C	03	D2	
WHITTAKER ORDNANCE INC	GT,ED,ET,RS,HU,AS,IT	Several Interim remedial measures	YES		5R	03		Currently, there are four commingled

Cal EPA Jurisdiction

• California's Water Code (WC) Division 7 and Health and Safety Code (HSC) Chapters 6.5 and 6.8 contain provisions that govern the cleanup of waste that threatens human health and the environment.

• State and federal law vest the Water Boards and DTSC with the authority to require cleanup of any site in California where a waste or toxic substance has been released, including perchlorate.

Water Board Jurisdiction

- WC Section 13001 identifies the Water Board as the state agency with primary responsibility for the coordination and control of water quality.

- WC Section 13304 allows the Water Board to require cleanup or abate any discharge into waters of the State that causes or threatens to cause a condition of pollution or nuisance.

- WC Section 13267 allows the Water Board to require any person suspected of having discharged waste that could affect water quality to furnish technical or monitoring reports, as long as the cost of the report bears a reasonable relationship to the need for and benefits of the report.

DTSC Jurisdiction

- Under HSC Chapter 6.5 DTSC oversees cleanup activities at facilities that generate, store, treat, or dispose of hazardous waste, and illegal operations.

- HSC Chapter 6.5 is intended to primarily address the management of hazardous waste generated by industries and the bulk of the statute is addressed to the proper management and disposal of such wastes.

- Corrective action (cleanup) is required where hazardous wastes or constituents have been released into the soil, ground water, surface water, or air.

DTSC Jurisdiction

- HSC Chapter 6.8 was adopted with the intent to specifically address cleanup of hazardous substances due to unauthorized discharges.

- DTSC conducts and oversees the remediation of properties throughout the State, including former industrial plants, military bases, small businesses, and landfills that are contaminated with some level of toxic substances in order to protect public health and the environment.

Water Boards and DTSC Cleanup Process

Cleanups under all three programs apply similar processes, including:

- Site Discovery / Preliminary Assessment
- Site Investigation
- Evaluation of Alternatives / Risk Management
- Selection of a Remedial Action
- Implementation of the Action
- Confirmation of Completion
- Interim Measures (any point in process)

Water Boards and DTSC Cleanup Process

- HSC Chapters 6.5 and 6.8 require compliance with more prescriptive processes that generally follow federal CERCLA, but may result in more thorough evaluation of health risks.

- The Water Code process requirements are generally more flexible allowing more site-specific variation, but focus more directly on water quality than other media.

- Cleanups completed under all three programs generally result in similar final results.

Geotracker Perchlorate Database

- Responding to the growing number of perchlorate contaminated wells, Cal EPA rapidly expanded SWRCB Geotracker to create the **Joint Geotracker SWRCB and DTSC Perchlorate Contaminant Site Database.**

- Geotracker Perchlorate Database will allow for real time updating and sharing of information between agencies.

- Will allow both agencies to better understand perchlorate releases in California.